## REMARKS

The Office action has been carefully considered. The Office action rejected claims 16 and 27 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Further, the Office action rejected claims 9 and 13 under 35 U.S.C. § 112, second paragraph as being indefinite. Further yet, the Office action rejected claims 1-36 and 41-43 under 35 U.S.C. § 102 (e) as being anticipated by U.S. Patent Publication No. 2004/0093326 A1 to Carson et al. ("Carson"). Still further, the Office action provisionally rejected claims 1 and 17 on grounds of nonstatutory obviousness-type double patenting in view of copending U.S. Patent Application No. 10/692,549. Applicants have amended claims 9 and 13 to eliminate the §112 rejections and file herewith a terminal disclaimer to overcome the obviousness-type double patenting rejection. Regarding the remaining rejections, applicants respectfully disagree.

By present amendment, claims 1, 9, 13, 16, 17, 19, 27, 28, and 41 have been amended for clarification and not in view of the prior art. Applicants submit that the claims as filed were patentable over the prior art of record, and that the amendments herein are for purposes of clarifying the claims and/or for expediting allowance of the claims and not for reasons related to patentability. Reconsideration is respectfully requested.

Applicants thank the Examiner for the interview held (by telephone) on May 23, 2006. During the interview, the Examiner and applicants' attorney discussed the claims with respect to the prior art. The essence of applicants' position is incorporated in the remarks below.

Prior to discussing reasons why applicants believe that the claims in this application are clearly allowable in view of the teachings of the cited and applied references, a brief description of the present invention is presented.

The present invention is directed to a system and method for enabling UDDI client applications to interactively obtain taxonomy information from a UDDI server and thereby present that information to a user, such as to enable the user to navigate the taxonomy. Taxonomies such as those within UDDI may be used to categorize sets of related values in the service registry, in which these values are typically used to categorize entities such as web services or web service providers. These values make up the "nodes" within a taxonomy. The nodes typically offer a hierarchical breakdown of a domain (such as the series of hierarchically arranged nodes in a geographic taxonomy path "World / Europe / UK / Scotland"). Taxonomies may also cover domains where there is no established hierarchy, such as by placing all nodes as peers at the top, or root level.

A mechanism such as an application programming interface (API) is provided by which a client application sends a unique taxonomy identifier and a relationship qualifier to a server. The client may also provide a node identifier within the taxonomy to indicate a reference node for which a related node (or set of related nodes) is being sought. The API may use XML as the message format for the request and the response.

The API provides the requested information to an implementing service in a server (*e.g.*, in a UDDI-based service registry). A request handling mechanism in the server extracts the data provided by the client in order to query a database

(which may be any data store) for the relationship information. The request handling mechanism then formats and returns a response based on the results of the database query. The client (*e.g.*, an application program running on a client machine) then interprets the response and thereby has the capability to enumerate, identify and describe the taxonomy.

If the client provides a root node qualifier, the server returns a root node identifier at the top or "root" level of the specified taxonomy. A taxonomy may have multiple root nodes, in which event the response may include the data for each root node. If the client provides a parent node qualifier and specifies a particular node within the taxonomy, the server returns information about the parent node. If the client provides a child node qualifier and specifies a particular node within the taxonomy, the server returns information about the child node or nodes of the specified node. More than one qualifier can be provided per request, and other relationship qualifiers are possible. The relationship may be with a node in another taxonomy, *e.g.*, to specify one node in a taxonomy and find an equivalent node in another taxonomy.

The response may provide additional details. For example, in a UDDI-based environment, the response may include the unique identifier of the taxonomy, a unique (within the scope of that taxonomy) keyValue that uniquely identifies the node within that taxonomy, a keyName comprising human-readable symbols such as a text string, and an indication (in an isValid attribute) of whether this node is appropriate for classifying entities, or is provided only to provide structure within the hierarchy.

To provide the relationship information, the server maintains a database in the form of one or more tables accessed with keys. One such table includes a taxonomy UUID field, a taxonomy node value field, a parent node value field, and an isValid field. The keyName data may be in another field, or may be kept as an offset pointer or the like into a structure containing the keyName strings. With this arrangement, given the appropriate keys to identify a taxonomy and a node therein, if a relationship beyond the root node is being sought, a straightforward query can determine root, parent and child relationships, and relationships with node(s) of another taxonomy. Multiple queries can be used to obtain other relationships. In general, if XML is used, any relationship tag that the client and request handling mechanism both understand and from which the server can detect a relationship may be used to request and obtain data.

With the response data, the client can present a hierarchical view that matches the taxonomy or taxonomies on the server. The client application may allow navigation through the taxonomies, along with displaying information about each node as the user selects a node during navigation.

Note that the above description is for example and informational purposes only, and should not be used to interpret the claims, which are discussed below.

*§101 Rejections*

The Office action rejected claims 16 and 27 as being directed to non-statutory subject matter. In particular, the Office action contends that the term "performing" does not recite enough functionality. Further, the Office action

contends that signals, in and of themselves, are not statutory. Applicants respectfully disagree.

Section 2106(IV)(B)(1)(a) of the MPEP states that functional descriptive material that is recorded on some computer-readable medium is structurally and functionally interrelated to the medium and is statutory since use of technology permits the function of the descriptive material to be realized. See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *In re Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim). Carrier waves and modulated signals are examples of data that may be interpreted by a computer (*i.e.*, a computer-readable medium) and may also be considered a product-by-process which is also statutory per se if the underlying process is statutory. Furthermore, the MPEP specifically states (section 2106(IV)(B)(1)(c)) that a signal claim directed to a practical application is statutory regardless of its transitory nature. *See O'Reilly*, 56 U.S. at 114-19; *In re Breslow*, 616 F.2d 516, 519-21, 205 USPQ 221, 225-26 (CCPA 1980). Recent court decisions have also held that "signals" are proper staturtory subject matter. See *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F.2d 1053, 22 USPQ.2d 1033 (CCPA 1992),(wherein the court held that the view that there is nothing necessarily physical about "signals" is incorrect and that computer-program related inventions can be claimed in terms of "signals" as

computers operate according to signals. In fact, anything that is being manipulated or transformed can typically be drafted in terms of "signals").

Notwithstanding, claims 16 and 27 have been amended to recite "operable to execute" and "computer-readable storage medium" for the purposes of expediting allowance of the application. Applicants submit that claims 16 and 27 are clearly directed to statutory subject matter and respectfully request that the §101 rejections for these claims be withdrawn.

*§102 Rejections*

Turning to the §102 rejections, independent claim 1 generally recites a method comprising receiving a request for taxonomy-related information, the request including identification data and relationship data, extracting data from the request; and querying a database based on the data extracted from the request to obtain taxonomy-related information about at least one node, the taxonomy related information having at least one identifier that corresponds to the identification data and having a relationship that corresponds to the relationship data.

The Office action rejected claim 1 as being anticipated by Carson. More specifically, the Office action contends that Cason teaches receiving a request for taxonomy-related information, the request including identification data and relationship data. Paragraph 0032, paragraph 0072, and paragraph 0074 of Carson are referenced. Further, the Office action contends that Carson teaches extracting data from the request. Paragraph 0072 of Carson is referenced. Further yet, the Office action contends that Carson teaches querying a database based on

the data extracted from the request to obtain taxonomy-related information about at least one node having a relationship that corresponds to the relationship data. Paragraph 0056 of Carson is referenced. Applicants respectfully disagree.

Applicants submit that Carson does not teach all the recitations of claim 1. Carson is directed, generally, to a system and method for dealing with services in a mobile electronic network environment. According to the methodology of Carson, information about services are organized according to a well-known tree structure having several nodes organized into categories of services, *e.g.*, category level, entity level, class level, *etc.* More particularly, Carson describes a tree in which all the aforementioned data about services may be stored with regard to services available in a given system. However, this data is not able to be queried. That is, any device that requires use of one or more services must necessarily know where those services may be accessed and which services are available. Carson describes in extensive detail several demarcations of services and a manner to organize a structure, but Carson is silent with respect to any manner in which this information may be queried or discovered. In essence, this type of taxonomy structure underlies the very nature of a significant problem that is solved according to aspects of the present invention.

According to an embodiment of the present invention, the taxonomy information may be stored in a database such that a query having identification information and relationship information may quickly and easily locate and identify a particular service that is available. Carson is wholly unconcerned with querying or discovering information stored in its tree structure.

Carson simply does not teach a database of taxonomy related information. The Office action contends that Carson does teach such a concept at paragraph 0056 of the specification. However, this section of Carson merely describes another service (a retrieval service, in this case) that is described in Carson's tree structure. Carson describes that the retrieval service may query other databases of information (such as a Caller ID database) but this information retrieval is not introspective. That is, the retrieval service simply does not query about the very tree structure in which information about the service is found. Furthermore, the databases queried by this service are wholly unrelated to any taxonomy-related information. Carson thus does not teach querying a database based on the data extracted from a request to obtain taxonomy-related information.

Notwithstanding these patentable differences, claim 1 has been amended to recite the taxonomy related information having at least one identifier that corresponds to the identification data and having a relationship that corresponds to the relationship data. Not having any database of taxonomy information in which data may be discovered, queried and drawn, Carson certainly cannot teach that data returned in response to a database query yields both identification data and relationship data. In short, Carson teaches a system that is wholly unrelated to the present invention as claimed. For at least these reasons, applicants submit that claim 1 is allowable over the prior art of record.

Applicants respectfully submit that dependent claims 2-16, by similar analysis, are allowable. Each of these claims depends either directly or indirectly from claim 1 and consequently includes the recitations of independent claim 1. As

discussed above, Carson fails to disclose the recitations of claim 1, and therefore these dependent claims are also allowable over the prior art of record. In addition to the recitations of claim 1 noted above, these dependent claims include additional patentable elements.

Turning to the next independent claim, amended claim 17 generally recites a method comprising constructing a request for taxonomy data, the request including identification data from which a taxonomy may be identified and at least one relationship qualifier, communicating the request to a server, receiving a response from the server including identification information corresponding to the identification data and relationship information corresponding to the relationship qualifier, and presenting information about the taxonomy, the information based on the identification information and based on the relationship information in the response.

The Office action rejected claim 17 as being unpatentable over Carson. More particularly, the Office action contends that Carson teaches constructing a request for taxonomy data, the request including identification data from which a taxonomy may be identified and at least one relationship qualifier. Paragraph 0032, paragraph 0072, and paragraph 0074 of Carson are referenced. Further, the Office action contends that Carson teaches communicating the request to a server. Paragraph 0003 of Carson is referenced. Further yet, the Office action contends that Carson teaches receiving a response from the server including relationship information corresponding to the relationship qualifier. Paragraph 0040 of Carson is referenced. Finally, the Office action contends that Carson teaches presenting

information about the taxonomy based on the relationship information in the response. Again, paragraph 0040 of Carson is referenced. Applicants respectfully disagree.

Applicants submit that Carson unquestionably does not teach all of the limitations of claim 17. As discussed above, Carson is directed, generally, to a system and method for dealing with services in a mobile electronic network environment. Carson describes a tree structure in which data about services may be stored with regard to services available in a given system. However, this data is not able to be queried, as the information is simply not stored in any query-able database. That is, any device that requires use of one or more services must necessarily know where services may be accessed and which services are available.

Significantly, in the present invention, taxonomy information may be stored in a database such that a query having identification information and relationship information may quickly and easily locate and identify a particular service available. Carson is wholly unconcerned with querying or discovering such information as stored in Carson's tree structure. As such, Carson does not teach or seven suggest the concept of querying a database, based on data extracted from a request, to obtain taxonomy-related information.

Notwithstanding these patentable differences, claim 17 has been amended to recite receiving a response from the server including identification information corresponding to the identification data and relationship information corresponding to the relationship qualifier. Not only is a request to a database constructed that

includes both identification data and relationship data, but an response that includes identification data and relationship data is received. In short, Carson teaches a system that is wholly unrelated to the present invention, including at least one purpose of the present invention. For at least these reasons, applicants submit that claim 17 is allowable over the prior art of record.

Applicants respectfully submit that dependent claims 18-27, by similar analysis, are allowable. Each of these claims depends either directly or indirectly from claim 17 and consequently includes the recitations of independent claim 17. As discussed above, Carson fails to disclose the limitations of claim 17 and therefore these claims are also allowable over the prior art of record. In addition to the recitations of claim 17 noted above, these dependent claims include additional patentable elements.

Turning to the next independent claim, amended claim 28 generally recites a system comprising a client, the client including an application program that presents taxonomy-related data, and a server that maintains taxonomy data, the server coupled to receive taxonomy-related requests from the client seeking identification information and relationship information about nodes in a taxonomy, and in response to each request, to locate relationship information corresponding to a node in a specified taxonomy and to return a response to the client from which the client is operable to present the taxonomy-related data.

The Office action rejected claim 28 as being anticipated by Carson. More specifically, the Office action contends that Carson teaches a client, the client including an application program that presents taxonomy-related data. Paragraph

0028 of Carson is referenced. The Office action also contends that Carson teaches a server that maintains taxonomy data, the server coupled to receive taxonomy-related requests from the client seeking relationship information about nodes in a taxonomy, and in response to each request, to locate relationship information corresponding to a node in a specified taxonomy and to return a response to the client from which the client may present the taxonomy-related data. Applicants respectfully disagree.

Applicants submit that Carson does not teach all of the limitations of claim 28. Again, Carson is directed, generally, to a system and method for dealing with services in a mobile electronic network environment. More specifically, Carson describes a tree structure in which data about services may be stored with regard to services available in a given system. However, this data is not able to be queried. As a result, any device that requires use of one or more services necessarily needs to know where such services may be accessed and which services are available.

Significantly, in the present invention, taxonomy information may be stored in a database such that a query having identification information and relationship information may quickly and easily locate and identify a particular service that is available. Carson is wholly unconcerned with querying or discovering information stored in Carson's tree structure.

In terms of claim 28, Carson simply does not teach a server that maintains taxonomy data, the server coupled to receive taxonomy-related requests from the client seeking identification information and relationship information about nodes in

a taxonomy. As Carson does not teach any database or server of taxonomy related information, no request for information from such a database is constructed; consequently, Carson does not teach querying a database based on data extracted from a request to obtain taxonomy-related information.

Notwithstanding these patentable differences, claim 28 has been amended to recite receiving requests from the client seeking identification information and relationship information about nodes in a taxonomy. Not only is a request to a server received that includes both identification data and relationship data but also the server responds with an answer that includes identification data and relationship data. This is not even considered in Carson. For at least these reasons, applicants submit that claim 28 is allowable over the prior art of record.

Applicants respectfully submit that dependent claims 29-36, by similar analysis, are allowable. Each of these claims depends either directly or indirectly from claim 28 and consequently includes the limitations of independent claim 28. As discussed above, Carson fails to disclose the limitations of claim 28 and therefore these claims are also allowable over the prior art of record. In addition to the limitations of claim 28 noted above, the dependent claims include additional patentable elements.

Turning to the last independent claim, amended claim 41 generally recites a system comprising means for receiving a request that indicates identification data and relationship data corresponding to a taxonomy and means for querying a database based on the identification data and relationship data to obtain taxonomy-

related information about at least one node in the taxonomy that corresponds to the identification data and relationship data.

The Office action rejected claim 41 as being anticipated by Carson. In specific, the Office action contends that Carson teaches means for receiving a request that indicates identification data and relationship data corresponding to a taxonomy. Paragraph 0032, paragraph 0072, and paragraph 0074 of Carson are referenced. The Office action further contends that Carson teaches means for querying a database based on the identification data and relationship data to obtain taxonomy-related information about at least one node in the taxonomy. Paragraph 0056 of Carson is reference. Applicants respectfully disagree.

Applicants submit that Carson does not teach that taxonomy information may be stored in a database, such that a query having identification information and relationship information may quickly and easily locate and identify a particular service available, as essentially claimed. Carson is wholly unconcerned with querying or discovering information stored in any tree structure.

In terms of claim 41, Carson thus falls far short of teaching anything even resembling means for querying a database based on the identification data and relationship data to obtain taxonomy-related information. As Carson does not teach any database of taxonomy related information, no request for information from such a database may be queried. Simply put, Carson does not teach querying a database based on the data extracted from the request to obtain taxonomy-related information.

Furthermore, claim 41 has been amended to recite obtaining taxonomy-related information about at least one node in the taxonomy that corresponds to the identification data and relationship data. Not only is a database queried for data that includes both identification data and relationship data, but also a response is returned that includes identification data and relationship data. Carson does not do anything like this. For at least these reasons, applicants submit that claim 41 is allowable over the prior art of record.

Applicants respectfully submit that dependent claims 42 and 43, by similar analysis, are allowable. Each of these claims depends either directly or indirectly from claim 41 and consequently includes the recitations of independent claim 41. As discussed above, Carson fails to disclose the recitations of claim 41 and therefore these claims are also allowable over the prior art of record. In addition to the recitations of claim 41 noted above, the dependent claims include additional patentable elements.

For at least these additional reasons, applicants submit that all the claims are patentable over the prior art of record. Reconsideration and withdrawal of the rejections in the Office action is respectfully requested and early allowance of this application is earnestly solicited.

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## CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that claims 1-36 and 41-43 are patentable over the prior art of record, and that the application is in good and proper form for allowance. A favorable action on the part of the Examiner is earnestly solicited.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney at (425) 836-3030.

Respectfully submitted,

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In re Application of Milligan et al.
Serial No. 10/607,812



CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this Response, along with transmittal and facsimile cover sheet, are being transmitted by facsimile to the United States Patent and Trademark Office in accordance with 37 C.F.R. 1.6(d) on the date shown below:

Date: July 19, 2006

Albert S. Michalik

*3670 Amendment*